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AGROECOLOGICAL STUDY ON MAIZE POPULATIONS FROM THE NORTH OF SPAIN

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A hundred local populations of maize from Guipúzcoa, in Northern Spain, were classified using 16 morphological traits, and 18 ecological variables from the original collection places.

The use of grouping methods based on morphological traits allows the characterization of the populations and finding the patterns of differences and similarities between them. The use of ecological variables from the collecting locations can provide some useful knowledge about the adaptation of these populations to specific conditions. This fact bears importance to choose the specific germplasm for each geographic area, and to set up an additional criterion in the selection of distinctive areas to collect local populations.

Evaluation and characterization were carried out in two locations for two years, with an experimental design of complete randomized blocks and three replications. The ecological variables were climatic and edaphic parameters of the environments where the populations grow.

Using numerical taxonomy procedures, seven different groups based on morphological traits and six groups from the ecological variables were obtained. The classifying ability of each variable was assessed by discriminant analysis, the leaf area, ear shape, and rows number being those of most relevance. Soil parameters such as sodium, calcium and potassium, organic matter, and soil texture showed the most discriminant ability. From the results there is not a clear relationship between the morphological and environmental variation in these populations, in agreement with the low correlations obtained.